

**IN THE CLAIMS:**

- 1 1. (CURRENTLY AMENDED) A system for reporting information related to prede-  
2 termined storage volumes in a network, ~~each volume including a cluster of physical stor-~~  
3 ~~age disks and defining a logical arrangement of storage space~~, the system including at  
4 least one storage appliance comprising:  
5 a monitor process that identifies volumes and retrieves statistical information with  
6 respect to the volumes, each volume including a cluster of physical storage disks and de-  
7 fining a logical arrangement of storage space;  
8 an interface adapted to enable a plurality of selected volumes to be associated  
9 with a group, the group independent of a physical arrangement of physical storage disks  
10 in the network; and  
11 a reporting process that organizes and displays the statistical information with re-  
12 spect to the volumes associated with the group to interested parties.
- 1 2. (ORIGINAL) The system as set forth in claim 1 wherein the reporting process in-  
2 cludes an event process for determining identities of the interested parties with respect to  
3 a predetermined event condition with respect to the volumes based upon the statistical  
4 information and for notifying the interested parties.
- 1 3. (ORIGINAL) The system as set forth in claim 2 wherein the event conditions include  
2 parameters of the volume and an associated device of the volume that exceed threshold  
3 levels.

1 4. (ORIGINAL) The system as set forth in claim 3 wherein the parameters include at  
2 least one of a central processing utilization level, a storage disk free space, a storage disk  
3 used space, an environmental condition and operational status.

1 5. (CURRENTLY AMENDED) The system as set forth in claim 3 wherein the event  
2 process ~~includes~~ is adapted to e-mail event information to at least some of the interested  
3 parties.

1 6. (ORIGINAL) The system as set forth in claim 5 wherein the e-mail of the event in-  
2 formation includes web links for use by the interested parties.

1 7. (ORIGINAL) The system as set forth in claim 3 further comprising a database that  
2 retains information with respect to the interested parties and the threshold levels for the  
3 parameters.

1 8. (ORIGINAL) The system as set forth in claim 1 wherein the each of the volumes are  
2 attached to each of a plurality of filers, respectively.

1 9. (ORIGINAL) The system as set forth in claim 1 further comprising a command proc-  
2 ess for generating web pages that report the statistical information to at least some of the  
3 interested parties.

1 10. (ORIGINAL) The system as set forth in claim 9 wherein the web pages are con-  
2 structed and arranged as graphical user interfaces that enable display of the statistical in-  
3 formation in a plurality of predetermined windows and boxes within the windows based  
4 upon selection criteria entered by the interested parties.

1 11. (ORIGINAL) The system as set forth in claim 10 further comprising alerts displayed  
2 on the graphical user interface based upon problems identified by the monitor process  
3 with respect to the volumes or devices associated with the volumes.

1 12. (ORIGINAL) The system as set forth in claim 11 wherein the alerts are color-coded  
2 based upon severity of the problems, respectively.

1 13. (CURRENTLY AMENDED) The system as set forth in claim 1 wherein the report-  
2 ing process is adapted to consolidate the statistical information from one or more vol-  
3 umes ~~on one or more of the volumes~~ on one or more storage appliances into the group.

1 14. (CURRENTLY AMENDED) A graphical user interface for use with a management  
2 station or client attached to a network having storage volumes, ~~each volume including a~~  
3 ~~cluster of physical storage disks and defining a logical arrangement of storage space~~, the  
4 graphical user interface comprising:

5 a display window that enables at least one of the volumes to be selectively associ-  
6 ated with a desired group of interested parties, each volume including a cluster of physi-  
7 cal storage disks and defining a logical arrangement of storage space; and

8 a display window that shows information related to performance and status of the  
9 volumes of the group based upon criteria selected by the user.

1 15. (ORIGINAL) The graphical user interface as set forth in claim 14 wherein the infor-  
2 mation includes at least one of central processing unit usage, volume disk free space, vol-  
3 ume disk used space; environmental conditions; general operational status and events in  
4 which an operational parameter exceeds a predetermined threshold.

1 16. (ORIGINAL) The graphical user in interface as set forth in claim 15 wherein the  
2 events include alerts that are color-coded based upon severity of a problem.

1 17. (ORIGINAL) The graphical user interface as set forth in claim 15 further comprising  
2 a link box that directs a user to network or Internet-based utilities in connection with the  
3 information.

1 18. (ORIGINAL) The graphical user interface as set forth in claim 14 wherein each dis-  
2 play window is formatted as a web page and is displayed on a web browser.

1 19. (CURRENTLY AMENDED) A method for reporting information related to prede-  
2 termined storage volumes in a network, ~~each volume including a cluster of physical stor-~~  
3 ~~age disks and defining a logical arrangement of storage space~~, the method including at  
4 least one storage appliance comprising the steps of:  
5 identifying volumes and retrieving statistical information with respect to the vol-  
6 umes, each volume including a cluster of physical storage disks and defining a logical  
7 arrangement of storage space;

8 associating at least one of the identified volumes with a group, the group inde-  
9 pendent of a physical arrangement of physical storage disks in the network; and  
10 organizing and displaying the statistical information with respect to the volumes  
11 associated with the group to interested parties.

1 20. (ORIGINAL) The method as set forth in claim 19 wherein the step of reporting in-  
2 cludes e-mailing the statistical information to at least some of the interested parties.

1 21. (ORIGINAL) The method as set forth in claim 20 further comprising formatting a  
2 web page containing the statistical information in a predetermined display format.

1 22. (ORIGINAL) The method as set forth in claim 21 further comprising changing the  
2 predetermined display format based upon user-selected criteria.

1 23. (ORIGINAL) The method as set forth in claim 19 wherein the step of organizing and  
2 displaying includes displaying event information related to predetermined of the statisti-  
3 cal information that exceeds desired parameters.

1 24. (ORIGINAL) The method as set forth in claim 23 wherein the step of displaying the  
2 event information includes providing color-coded alerts that indicated a severity of a  
3 problem associated with the respective event.

1 25. (CURRENTLY AMENDED) A computer-readable medium operating on a computer  
2 in a network that includes one or more storage appliance having volumes, ~~each volume~~  
3 ~~including a cluster of physical storage disks and defining a logical arrangement of storage~~  
4 ~~space,~~ the computer-readable medium including program instructions for performing the  
5 steps of:

6 identifying storage volumes and retrieving statistical information with respect to  
7 the volumes, each volume including a cluster of physical storage disks and defining a  
8 logical arrangement of storage space;

9 associating at least one of the identified volumes with a group, the group inde-  
10 pendent of a physical arrangement of physical storage disks in the network; and

11 organizing and displaying the statistical information with respect to the volumes  
12 associated with the group to interested parties.

1 26. (CURRENTLY AMENDED) A method for organizing and displaying information  
2 with respect to one or more volumes on one or more storage appliances attached to a  
3 network, ~~each volume including a cluster of physical storage disks and defining a logi-~~  
4 ~~cal arrangement of storage space, each of the volumes having statistical information as-~~  
5 ~~sociated therewith,~~ the method comprising the steps of:

6 establishing a group of one or more of the volumes based upon predetermined re-  
7 porting criteria, each volume including a cluster of physical storage disks and defining a  
8 logical arrangement of storage space, each volume having statistical information associ-  
9 ated therewith,; and

10 consolidating the statistical information collected with respect to the volumes in  
11 the group for display to interested parties.

1 27. (ORIGINAL) The method as set forth in claim 26 further comprising comparing  
2 known predetermined threshold values to parameters of the statistical information gener-

3     ating an event condition when the at least one of the parameters exceeds at least one of  
4     the threshold values, respectively.

1     28. (PREVIOUSLY PRESENTED) The method as set forth in claim 27 further com-  
2     prising notifying at least one of the interested parties based upon the event condition us-  
3     ing an electronic message.

1     29. (CURRENTLY AMENDED) A system for reporting information related to one or  
2     more volumes in a network, ~~each volume including a cluster of physical storage disks and~~  
3     ~~defining a logical arrangement of storage space,~~ the system including at least one storage  
4     appliance comprising:

5             means for identifying volumes and retrieving statistical information with respect  
6     to the volumes, each volume including a cluster of physical storage disks and defining a  
7     logical arrangement of storage space;

8             means for associating at least one of the identified volumes with a group, the  
9     group independent of a physical arrangement of physical storage disks in the network;  
10     and

11             means for organizing and displaying the statistical information with respect to the  
12     volumes associated with the group to interested parties.

1     30. (PREVIOUSLY PRESENTED) The system as set forth in claim 29 wherein the  
2     means for reporting further comprises:

3             means for e-mailing the statistical information to at least some of the interested  
4     parties.

1 31. (PREVIOUSLY PRESENTED) The system as set forth in claim 29 wherein the  
2 means for organizing and displaying further comprises:  
3 means for formatting a web page containing the statistical information in a prede-  
4 termined display format.

1 32. (PREVIOUSLY PRESENTED) The system as set forth in claim 31 wherein the  
2 means for formatting further comprises:  
3 means for changing the predetermined display format based upon user-selected  
4 criteria.

1 33. (PREVIOUSLY PRESENTED) The system as set forth in claim 29 wherein the  
2 means for organizing and displaying further comprises:  
3 means for displaying event information related to predetermined of the statistical  
4 information that exceeds desired parameters.

1 34. (PREVIOUSLY PRESENTED) The system as set forth in claim 33 wherein the  
2 means for displaying event information further comprises:  
3 means for providing color-coded alerts that indicated a severity of a problem as-  
4 sociated with the respective event.

1 35. (PREVIOUSLY PRESENTED) A system for reporting information related one or  
2 more volumes in a network, ~~each volume including a cluster of physical storage disks and~~  
3 ~~defining a logical arrangement of storage space~~, the system comprising:



4 means establishing a group of one or more of the volumes based upon predeter-  
5 mined reporting criteria, each volume including a cluster of physical storage disks and  
6 defining a logical arrangement of storage space; and  
7 means for consolidating statistical information collected with respect to the vol-  
8 umes in the group for display to interested parties.

1 36. (PREVIOUSLY PRESENTED) The system as set forth in claim 35 further compris-  
2 ing:

3 means for comparing known predetermined threshold values to parameters of the  
4 statistical information; and

5 means for generating an event condition when the at least one of the parameters  
6 exceeds at least one of the threshold values.

1 37. (CURRENTLY AMENDED) The system as set forth in claim 36 further comprising:

2 means for notifying at least one of the interested parties using an electronic mes-  
3 sage, in response to the event condition.

1 38. (NEW) The system as set forth in claim 1 wherein the reporting process is config-  
2 ured to consolidate the statistical information collected with respect to each of the vol-  
3 umes in the group to form a single set of statistical information descriptive of the group,  
4 for display to interested parties.

1 39. (NEW) A method for organizing and displaying information regarding storage de-  
2 vices attached to a computer network:

3 organizing at least a portion of storage space on first physical storage devices to  
4 form a first logical arrangement of storage space;

1           organizing at least a portion of storage space on second physical storage devices  
2   to form a second logical arrangement of storage space;  
3           establishing a group that includes at least the first and the second logical arrange-  
4   ments of storage space, the group independent of a physical arrangement of the first and  
5   the second physical storage devices in the computer network;  
6           consolidating statistical information that describes the first and second logical ar-  
7   rangements of storage space to form a single set of statistical information descriptive of  
8   the group; and  
9           displaying the set of statistical information to a user.

1   40. (NEW) The method of claim 39 wherein the first physical storage devices and the  
2   second physical storage devices are different arrays of physical storage devices.

1   41. (NEW) The method of claim 39 wherein the first physical storage devices and the  
2   second physical storage devices are the same array of physical storage devices.

1   42. (NEW) The method of claim 40 wherein the arrays of physical storage devices each  
2   comprise a Redundant Array of Independent Disks (RAID).

1   43. (NEW) The method of claim 39 wherein the first logical arrangement of storage  
2   space is associated with a first storage appliance and the second logical arrangement of  
3   storage space is associated with a second storage appliance.

1   44. (NEW) The method of claim 39 further comprising the steps of:

2 detecting a predetermined event condition with respect to one or more of the logi-  
3 cal arrangements of storage space in the group; and  
sending a notification of the event condition to selected users.

1 45. (NEW) The method of claim 39 wherein the logical arrangements of storage space  
2 are volumes.

1 46. (NEW) A system for reporting information related to storage devices in a computer  
2 network

1 a monitor process that identifies a plurality of logical arrangements of storage  
2 space and retrieves statistical information describing the logical arrangements of storage  
3 space, each logical arrangement of storage space associated with at least a portion of  
4 storage space on a plurality of physical storage devices;

5 an interface adapted to enable the plurality of logical arrangements of storage  
6 space to be associated with a group, the group independent of a physical arrangement of  
7 physical storage devices in the computer network; and

8 a reporting process configured to, in response to selection of the group, display  
9 statistical information that describes the plurality of logical arrangements of storage space  
10 associated with the group.

1 47. (NEW) The system of claim 46 wherein the reporting process is further configured  
2 to consolidate statistical information that describes the plurality of logical arrangements  
3 of storage space to form a single set of statistical information descriptive of the group.

1 48. (NEW) The system of claim 46 wherein the group includes logical arrangements of  
2 storage space each organized from differing arrays of physical storage devices.

1 49. (NEW) The system of claim 48 wherein the arrays of physical storage devices each  
2 comprise a Redundant Array of Independent Disks (RAID).

1 50. (NEW) The system of claim 46 wherein the logical arrangements of storage space  
2 are associated with different storage appliances.

1 51. (NEW) The system of claim 46 wherein the reporting process is further configured to  
2 detect a predetermined event condition with respect to one or more of the logical storage  
3 devices in the group and to send a notification of the event condition to selected users.

1 52. (NEW) The system of claim 46 wherein the logical arrangements of storage space  
2 are volumes.

1 53. (NEW) A computer readable media, including program instructions executing on a  
2 processor, for organizing and displaying information regarding storage devices attached  
3 to a computer network, the program instructions including instructions for performing the  
4 steps of:

5       organizing at least a portion of storage space on physical storage devices to form a  
6 first logical storage device;

7       organizing at least a portion of storage space on physical storage devices to form a  
8 second logical storage device;

9       establishing a group that includes at least the first and second logical storage de-  
10 vices, the group independent of a physical arrangement of the physical storage devices in  
11 the computer network;

- 12           consolidating statistical information that describes the first and second logical
- 13 storage devices to form a single set of statistical information descriptive of the group; and
- 14           displaying the set of statistical information to a user.